MARCH, 1935

American FRUIT GROWER

In this issue

Through the Year With Spray Materials

•

New Grafting Compounds and Wound Dressings

•

Meet the Presidents of State Societies

•

What Value Orchard Sanitation

•

Pictorial Review of the Fruit World

•

ALSO

Nationwide News

State Horticultural News

Heard at the Conventions

—American Pomology

"Every Grower's" Page

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"Astringent" ARSENATE OF LEAD

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**Names and addresses gladly quoted on request*

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Paris Green
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Paradichlorobenzene
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90/10, 85/15 and other Sulphur-Arsenical Dusts
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AMERICAN FRUIT GROWER

(Title Registered in U.S. Patent Office)

VOLUME 55 No. 3

MARCH, 1935

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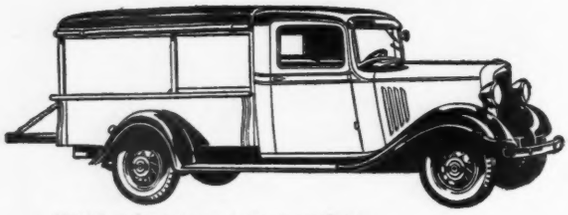

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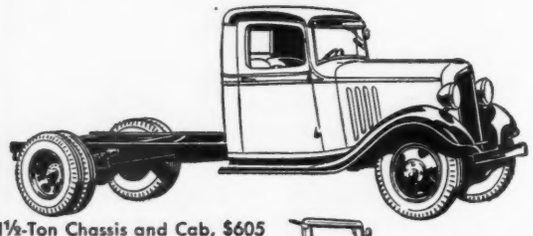

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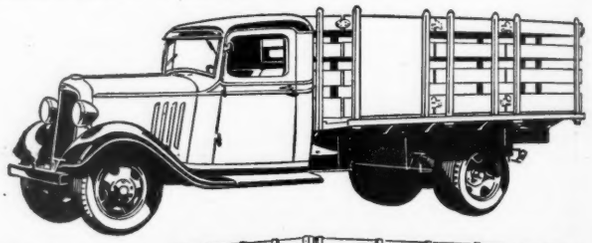
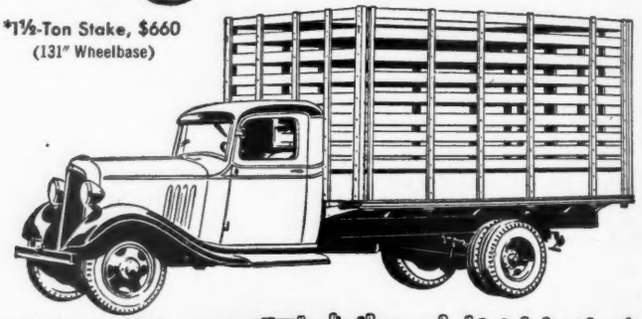
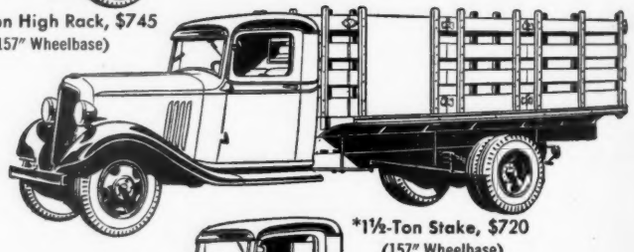
(131" Wheelbase)



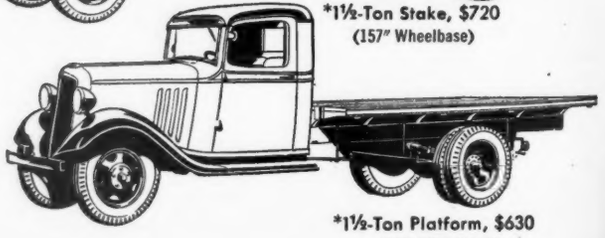
*1½-Ton Stake, $660
(131" Wheelbase)



*1½-Ton High Rack, $745
(157" Wheelbase)



*1½-Ton Stake, $720
(157" Wheelbase)



*1½-Ton Platform, $630
(131" Wheelbase)

*Above are list prices of commercial cars f. o. b. at Flint, Michigan. Special equipment extra. *Dual wheels and tires $20 extra. Prices subject to change without notice.*

CHEVROLET TRUCKS

WHAT VALUE ORCHARD SANITATION?

WHETHER to spray heavily and wash the fruit—or spray lightly to avoid the necessity of washing—have been paramount questions in many of the fruit-growing districts where codling moth is the outstanding pest. This pest has become a distinct menace to successful fruit growing in many important regions. It is inevitable under diverse managements that varying degrees of care are given these orchards, resulting in a rapid multiplication of codling moth population and a serious increase in scale, curculio, and many other pests. In some sections the economic limit of poison sprays has been reached, with as many as eight to ten applications furnishing only partial control.

What is the solution of this vexing problem? Is it not reasonable that prompt steps should be taken to prevent the development and multiplication of these pests, not only during the growing season but also during their hibernation periods, by orchard sanitation methods?

For several years now, the fruit grower has been given to understand that orchard sanitation plays a most important part in the solving of his insect problems. In codling moth control alone, these sanitary measures have been given as the basis for a successful cleanup program under previously difficult conditions. Up to the present time, however, no one has ever told the fruit grower just *how much* he could rely on this phase of his program. In other words, the proper evaluation of orchard sanitation has never been made.

Experiment station workers in general, from time back, have been conservative and reticent to divulge more information than they were absolutely sure of, and which could not be misinterpreted or applied to conditions where contrary results might be expected. At times this conservatism has been great enough to draw criticism which was not always justified. It is probably equally true, however, that at times the experimenter has been too backward or narrow in his recommendations.

One form of narrowness in research information has been the inadequacy of proper evaluation of experimental findings. A grower should be able to know the greatest possible returns he can get from each orchard practice, just as much as to know its limitations.

In the field of codling moth control, one of the apple growers' greatest problems is that this matter of evaluation has been applied to few phases of control outside of spraying. A great many growers right now would like to know how much worm reduction they can expect from packing-house sanitation or screening, from scraping and banding their trees, and from the use of moth traps on a larger scale than for simply timing their spray applications.

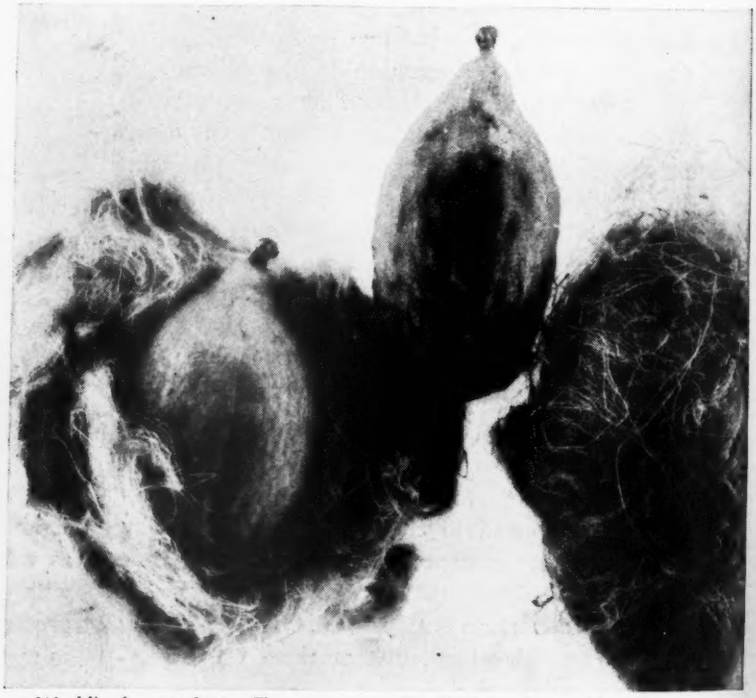
Some of these questions have been answered in a partial manner, but there as yet is nothing very scientific or definite about it. One fruit grower in Washington found to his own satisfaction that by hanging a moth trap in every other tree and spraying more thoroughly in the first brood, he could eliminate his second brood codling moth sprays altogether. Few other growers can be expected to follow this practice, however, until the new program has been duplicated, checked and evaluated by the state or federal experiment stations which our fruit growers are supporting and for the most part following in their recommendations.

No one suggests at the present time that spraying will or can be eliminated in the near future. Practically all we do know is that under the most severe conditions of our major fruit pests, *it alone is not enough.* If supplementary measures are to be relied on, therefore, it is of greatest significance that we know their maximum value as well as limitations, so that proper adjustment with the spray program can be made with the greatest possible efficiency in results and economy in application.

A PICTORIAL REVIEW OF THE FRUIT WORLD

Firewood from orchard prunings. The same tractor that cultivates the land, sprays the trees, and builds irrigation ditches on the S. D. Farrington orchard near San Jose, Calif., pulls a homemade sled that salvages valuable firewood from orchard prunings.

Japanese plums growing on dry hill land in Arkansas. The enormous productiveness may be seen in this photo.



World's dearest fruit. The most expensive fruit in the world is the etrog or sacred Jewish citron. It grows in Palestine and Greek islands of the Mediterranean and is about the size of a lemon. A perfect specimen of this rare fruit will bring as much as $25.00.

THROUGH THE YEAR WITH

SPRAY MATERIALS

WITH SPECIAL REFERENCE TO APPLE

By C. R. CUTRIGHT

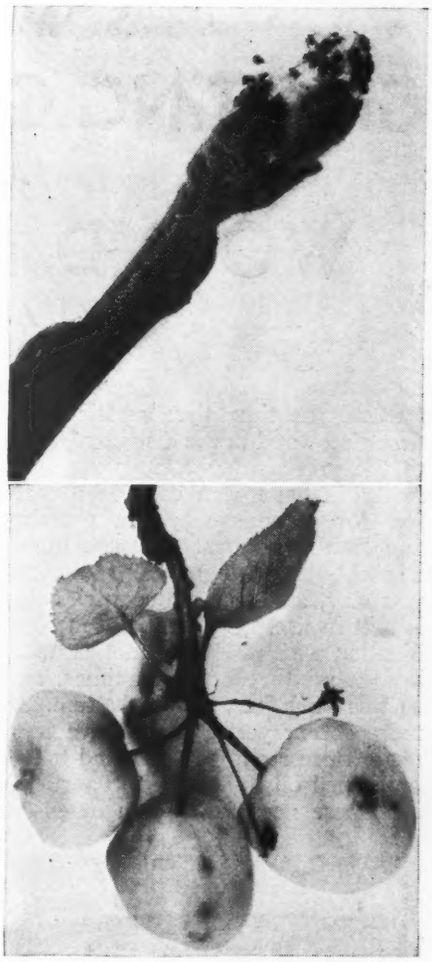
Ohio Experiment Station

AS the spray season approaches each grower is faced with the perennial question, "Shall I change my spray materials?" Due to increasing insect injury, it is probable that this question is of a more serious nature this year than ever before. In fact, it may be pertinently asked in regard to almost every spray application, since a choice of materials is now available at all periods of the spray season.

Dormant and Delayed Dormant Spraying.—For early season spraying there are now available three different types of sprays: (1) Sulphur sprays (lime-sulphur, soluble sulphur, etc.); (2) oil sprays (miscible oils, commercial lubricating oil emulsions, and home emulsified oils; (3) tar oil washes or tar-acid oils. The conditions that warrant the selection of any of these materials for use in early season are as follows: For the use of tar-acid oils

1. Heavy infestations of rosy apple aphis.
2. Very light infestations of scale or red mite.
3. Expectation of completing spraying during dormant season.

Tar-acid oils are the remedy "par excellence" for rosy aphis, though they must be thoroughly applied.



Top—Buds developed too far to use tar-acid oils. Bottom—Rosy aphis injury can be prevented by tar-acid oils in dormant or lime-sulphur-nicotine in delayed dormant.

They do not control scale or red mite and are injurious to buds if put on too late. They are unpleasant to handle and the faces of the spray men and the bodies of horses should be protected from drift. If a combined infestation of rosy aphis and scale or red mite exists in the same orchard, the use of tar-acid oil with lubricating oil may be considered.

The conditions justifying the use of oil sprays are:

1. Scale or red mite to be controlled (2-3% oil).
2. Leaf roller abundant (6-8% oil).
3. *Light* aphis infestations may be controlled.

The lubricating oils are tested products, are agreeable to use, easy on spray machinery, and are good for general clean-up purposes. Whether one should use the commercially prepared oils, which are highly convenient, or emulsify the oil at home, which is far cheaper, is a matter for the individual grower to decide. Re-

(Continued on page 22)

Top—Putting on a pre-blossom spray. Bottom—The first cover spray.

SOME NEW GRAFTING COMPOUNDS AND WOUND DRESSINGS

By J. A. NEILSON
Michigan State College

FROM the time that grafting was first discovered in the distant past until the present day various kinds of materials have been used as a coating for wounds made in grafting and in the removal of large limbs. Probably the first grafting compound was clay, and in some countries this is still in use. Cow manure in combination with mud was another well-known mixture of olden times, and so was pitch, tar, and asphaltum. In more recent years waxes have been made from resin, beeswax and tallow or linseed oil in varying proportions, and these mixtures are in extensive use now. All of these mixtures have given more or less satisfaction but none of them is without defects. Some are objectionable to apply, others require heating, and certain kinds lack adhesiveness and durability.

These defects have stimulated a search for materials that would be free of these shortcomings, and would retain the good qualities of the older preparations. This search has resulted in the development of some grafting compounds that are nearer the ideal than others heretofore recommended. One of the best materials brought out in recent years is a water soluble asphaltic emulsion. This material is made by several concerns and appears on the market under various trade names, such as "Tree Seal," "Tree Heal," and "Braco Tree Emulsion."

Asphaltic emulsions can be obtained in various sized containers and in the clear form or mixed with powdered asbestos. They are usually black, but may be purchased in red, green or gray color if desired. The colored products are more expensive and are not any more effective than the black material.

The writer's experience has been confined to Braco Tree Emulsion and Tree Seal and both materials have been satisfactory as grafting compounds. These and other similar preparations are soft, puttylike substances, which can be very easily applied with a paintbrush without heating. This is a great advantage, especially when working over large trees, as it does away with the necessity of carrying around a wax heater in the tops of tall trees, or through the orchard. More than one man has had painful and annoying experiences while perched in a tall tree in keeping the fire going in a heater and in preventing the wax from spilling over on his hands or on the heads of others working below.

In applying water soluble asphaltic emulsion, it is necessary to keep the material moist enough to spread on the wounds easily. If the emulsion gets dry and heavy, add a small amount of water and then mix thoroughly. Caution should be used in adding the water as it is possible to put in too much and thus make the mixture too thin for best results. If this should be inadvertently done, mix in a small amount of powdered asbestos to give the proper consistency. A good rule to follow is to keep the mixture moist enough to spread on in a thin, smooth coat and heavy enough to prevent running. Suitable emulsions properly applied will adhere firmly to all surfaces until forced away by developing callus on the margins of cuts or by the growth of the grafts. Economy in cost is another good point in favor of these materials. The emulsions seem not to hinder ready development of callus tissue on the margins of cut surfaces. This effect is probably due to the preservation of moisture rather than to any stimulative effect on cell development. The capacity to stand up in hot weather is another advantage of these emulsions. At the Kellogg Farm where most of our grafting has been done a temperature of 107° F. in the

(Continued on page 21)

Hican [Hicoria pecan]. Hicoria cordiformis grafted on pignut in May, 1934. Tree emulsion used as a grafting wax.

SOMETHING YOU HAVE ALWAYS NEEDED • DIRECTORY EDITION • AMERICAN FRUIT GROWER

"You'll want to keep it for handy reference"

By DEAN HALLIDAY

"SORRY, boss, but we can't go ahead with the spraying until we get a new nozzle for the gun. The old one's given out. Who handles that XX model now?"

* * *

"Now, let's see, what was the name of the outfit that handles those new type pruning shears I heard about at the last state meeting? Wish now I'd written down the name and address, so I could send for a pair."

* * *

"Who is the fellow who's agent in this part of the country for that new 'self-Selling' quick-pack, paperboard carton I saw displayed at the Century of Progress?"

* * *

How many times have you started your day with questions like those above, puzzling and perplexing you? And haven't you wished every time that you had a handy buyer's guide to give you just the information you needed?

Don't worry, you're not the only one who forgets or doesn't know. Every fruit grower in these United States—and there's more than 150,000 of them—has wanted and needed a Who's Who of What to Buy and Where.

As a service to both readers and advertisers, AMERICAN FRUIT GROWER is going to devote the June issue to a complete directory of orchard supplies and tools. Watch for this issue! Plan now to keep it handy, for it will be the first time that any publication reaching fruit growers has compiled a complete buyer's reference. You'll have occasion to use it again and again. There is no telling what it will save you in both time and money.

The Directory Number will not only contain a complete list of orchard supplies and tools, but it will tell you who manufactures each article and who stocks and sells it. By referring to this number of AMERICAN FRUIT GROWER you can select, at a glance, your nearest source of supply.

If you are interested in new fruit varieties—and what grower is not, in these progressive days?—you will find that the Directory Number also contains a complete list of the U. S. Plant Patents that have been issued to date. There will also be a complete listing of trade names and trademarks.

Another feature of the June issue, which you or your associates will find useful, will be a glossary of pomological terms. For your information and convenience, when writing to other parts of the country for special information, you will find in the Directory Number a complete list of experiment stations and horticultural schools and colleges. The issue will also contain a Who's Who in Pomology.

In preparing and placing this Directory Number in your hands, AMERICAN FRUIT GROWER realizes that the purchasing requirements to the commercial fruit grower have increased enormously in recent years. This is due, among other things, to the rapid multiplication of insects and tree diseases, which in turn calls for a greater use of tools and materials for preventive warfare.

The growing need of irrigating orchards to defeat the droughts so prevalent in many sections in recent years calls also for investment in the newest and most improved types of pipe, hose and pumps. Growing interest in the money-saving possibilities of grower-owned cold storage facilities has also meant investment in building construction, refrigerating units, insulating materials and accessories.

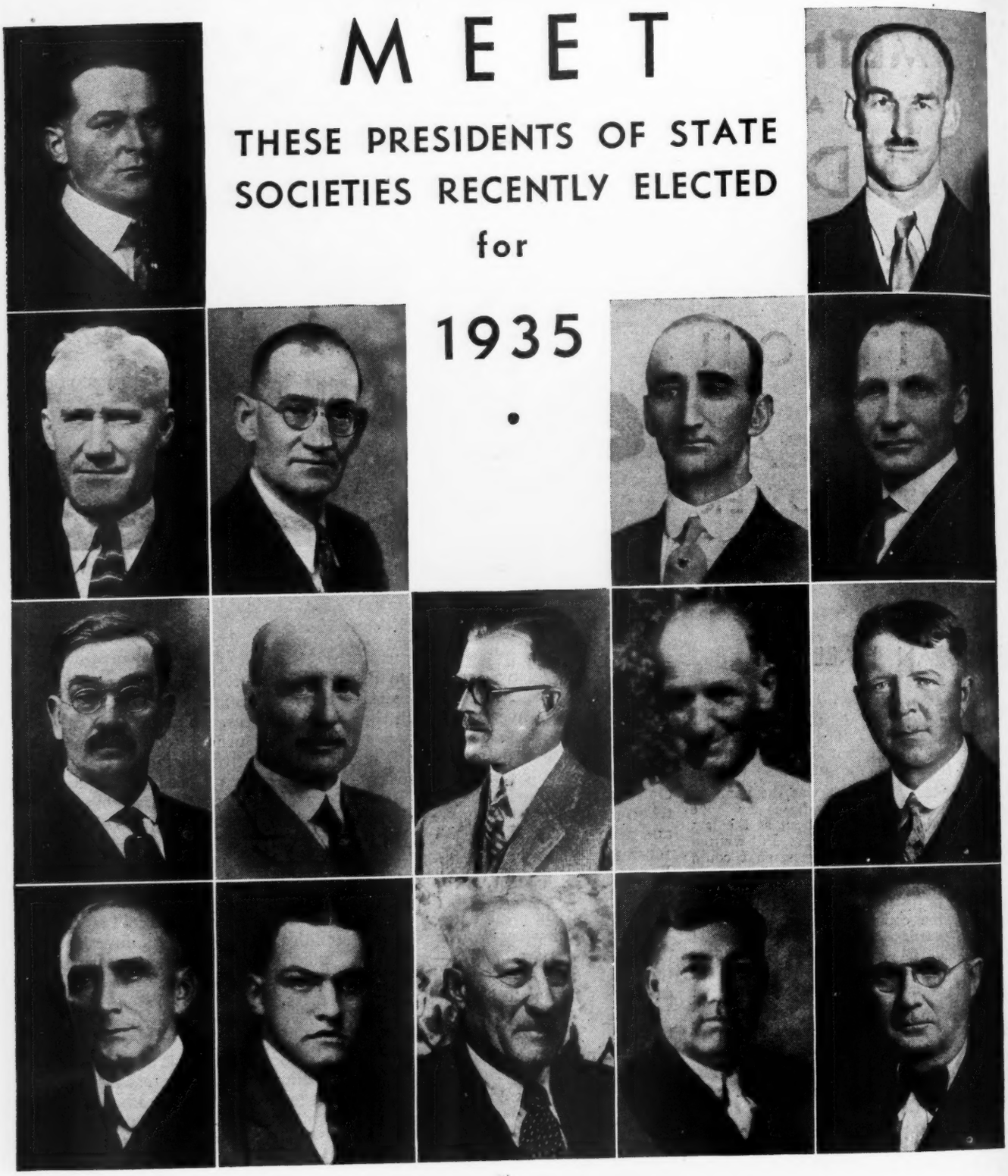
Every season brings development in new packs for greater sales appeal and to meet new standardization and labeling laws. Progress also is being made in motorized transportation of fruits to market, growers finding that increased investment in trucks brings increased profits, due to greater flexibility in reaching the market at the right time, so far as demand and price are concerned.

The renovizing movement also has spread to orchards. Growers everywhere are finding that it pays to plant young trees of new and improved varieties to replace old trees that are no longer paying their way.

The problem of pulling ourselves out of the depression—now that we are definitely on the upgrade—calls for the orderly spending of money in order to make money.

MEET

THESE PRESIDENTS OF STATE SOCIETIES RECENTLY ELECTED for 1935



HERE are some of the men who have been honored by election or re-election to the Presidency of their State Horticultural Societies. In succeeding issues AMERICAN FRUIT GROWER will publish portraits of presidents of other State Societies so that readers by meeting these men "face to face" will have the opportunity of making the acquaintance of the state leaders in the fruit growing industry.

H. F. Hershey, Pennsylvania
John Y. McDonald, West Virginia
M. S. Kellogg, Wisconsin
Robert A. Simpson, Indiana
F. E. DeSellem, Washington
J. H. Seaver, Idaho
William Gerald Amstein, Arkansas
W. J. Welday, Ohio
Sebastian Hahn, Kansas
C. Purcell McCue, Virginia
H. C. Hitz, Missouri
George F. Shoff, Illinois
Roger E. Peck, Massachusetts
Arlie L. Hopkins, Michigan
Alfred Swanson, Minnesota
H. W. Peck, Maine

STATE HORTICULTURAL NEWS

New York State Meeting

ONE of the most enjoyable features of the New York Horticultural Society's 80th annual meeting was its banquet held on Thursday night, January 17, at the Seneca Hotel, Rochester.

Samuel Fraser had been asked to prepare and handle the banquet program on this occasion. It occurred to him that it would be fine to hear from a representative of those who have contributed to the upbuilding of western New York. To this end he secured and delivered a message from Arthur C. Parker, a grandson of General Eli Parker and one of the leading representatives of the Seneca Nation, at present in charge of the Rochester Municipal Museum.

Another message was that from André de Laboulaye on behalf of the French pioneers, followed by that of Hon. Sir Ronald G. Lindsay on behalf of the British, the reading of these being preceded by the reading of messages from President Roosevelt, Governor Lehman and Mr. Bennett, Premier of Canada.

Since Dr. U. P. Hedrick was to speak on the history of the development of agriculture in New York, which subject he has been working on intensively, and since Mrs. Anna Roosevelt Dall Boettinger had worked under him for two years at the New York Experiment Station investigating American fruits, she too sent a special message, which was delivered in introducing Dr. Hedrick. The president of the society then took occasion to express his own personal appreciation of the work done by Dr. Hedrick.

This was followed by a message from Harry Hall, whose father was for over 30 years a very important factor in the development of the Western New York Horticultural Society and was secretary of it; also W. C. Barry who is the grandson of the first president, Patrick Barry, and whose father, W. C. Barry, was president for over 30 years.

These messages were followed by the reading of a telegram from the Secretary of Agriculture. Some comments were also made on the work being done by Hon. Cordell Hull, Secretary of State, on behalf of reciprocal agreements and the opening of foreign trade.

ROY P. MCPHERSON, *Sec'y*,
Le Roy.

Washington News

THE "Silly" season for Washington fruit growers is here. This is the term used for the period of time beginning about the first of the year and ending with the start of the pruning season Most of the important changes in the fruit industry have had birth during this period. It is of course true that many "silly" schemes have been thought of in the past and died a natural death in the course of time.

More activity than usual appears to be under way this year. The depression has brought many problems to the fruit grower of the Northwest and now seems to be the proper time to correct some of the evils that have been eating up the profits in years gone by. A united front of fruit growers, shippers and business men is making rapid progress to correct or adjust the problems.

Some of the problems are acute and must be solved at once. They include debt adjustment, lower interest rates and emergency finance. The more chronic problems that have been with the fruit grower for some time are lower freight rates, higher lead residue tolerance, advertising and improved methods of merchandising.

Real progress has been made thus far and before another year rolls around the fruit industry of the State of Washington should be on a much firmer basis. It will undoubtedly be recalled in the future that the "Silly" season of 1935 was the turning point of better times in the fruit industry.

Full day programs on important horticultural subjects have been held during January in Wenatchee, Okanogan and Yakima. Many of the papers presented at the state horticultural meeting at Pullman have been repeated at the district programs. Excellent attendance was experienced at all meetings and indicated that the grower is still interested in production problems, although he probably still thinks that economic problems are more critical at present.

W. A. LUCE,
Wenatchee.

Indiana Meeting Notes

APPROXIMATELY 125 fruit growers attended the first day of the three-day meeting of the Indiana Horticultural Society.

R. C. Baines, of the Purdue Agricultural Experiment Station, reported good results in collar rot prevention through the use of the zinc chloride solution treatments. It was pointed out, however, that the solution was not safe to use on all varieties, the notable exception being Golden Delicious. From the discussion which followed, it would seem that the average orchard man would gladly pay a nursery company a higher price for young trees known to be on good stocks and known to be clean from all fungous and bacterial diseases.

The discussions following the talk by Prof. J. A. McClintock, of Purdue, on "Better Rootstocks for 1935," revealed much interest in the research work being conducted at Purdue in an effort to find more suitable rootstock-scion combinations than those generally used at the present time.

The afternoon was given over to the old familiar program of codling moth control in its various phases. Speakers included L. F. Steiner, assistant entomologist of the U.S.D.A., Vincennes, Ind., station; G. Edward Marshall, of the Purdue, Bedford, Ind., station, and Profs. C. L. Burkholder and Monroe McCown, of the Purdue Experiment Station staff at Lafayette. Much interest was manifested in this portion of the program and in the washing machine demonstration by Prof. Burkholder, which followed.

The codling moth again received the spotlight attention, with Prof. Burkholder as discussion leader. Others also discussed various phases of this subject. Small fruits and landscape problems were given a place on the program also.

R. A. Simpson, Vincennes, president; Homer Coffing, Silverwood, vice president; and Dr. Laurenz Greene, Purdue, retiring executive board member, were all re-elected. A number of new memberships in the society were received during the meeting.

EVERETT WRIGHT, *Sec'y*,
Lafayette.

Idaho Sets New Record

WITH all the atmosphere, enthusiasm and appearance of a state fair, the Idaho State Horticultural Association closed its 40th annual convention at the Hotel Boise, Boise, Idaho, January 11. The educational feature of the convention was a three-day technical program, divided into the subjects of financing, marketing, and production problems. A two-day convention consisting of interesting and timely topics was also conducted as a separate program for the ladies.

The Hotel Boise was filled to capacity with exhibits of the finest fruits of the State in competition by districts, with individual fruit displays and commercial exhibits by firms handling supplies and materials used by the horticultural, nursery and bee industries. The total number of exhibits and attendance far out-ranked any previous records. Four high school fruit judging and grading teams were in competition for prizes, and five district fruit displays were entered in the district display contest. A contest for girls' canning clubs was also held.

The enlarged plans of the association activities did not overlook social and entertainment features, consisting of musical numbers, an address by Governor C. Ben Ross, and a band concert by the Boise Municipal Band. The Cherry Packers' Banquet and Ball on the evening of January 10 made a satisfactory climax. The banquet was the largest ever held, with 336 guests.

Space does not permit a review of the program features, which were thoroughly adapted to the fruit growers' needs at this

(Continued on page 18)

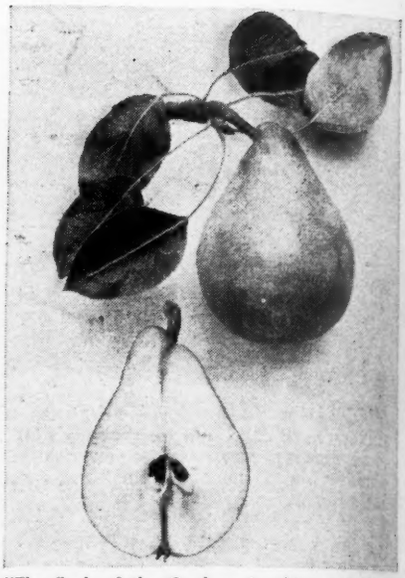
GORHAM PEAR
AS POLLINIZER

FREEMAN S. HOWLETT
Ohio Experiment Station

AFTER some years of observation in the testing grounds of the Ohio Experiment Station at Wooster, it now seems that the Gorham pear may well be recommended for limited commercial planting in Ohio and surrounding territory.

The variety originated at the New York Experiment Station from a cross made in 1910 between Barlett and Josephine de Malines. The tree and fruit soon gave evidences of desirable characteristics.

The three trees observed at Wooster were obtained from the New York Fruit Testing Association in 1924 and have made a moderately vigorous growth to date. As far as can be ascertained they are as productive as Bartlett. The trees have not yet blighted but it is admitted that there is no near source of infection to the trees. Woodruff and Bailey in Georgia Experiment Station Circular 96, which appeared in 1931, report Gorham as having "some blight," and Bartlett as having "severe blight" in their trial grounds. Professor Wellington of the New York Station writes (by recent letter): "Judging from our experience and observations Gorham is much more blight resistant than Bartlett." The male parent, Josephine de Malines, is ranked by Hedrick as resistant to blight. Therefore, it seems quite safe to say that it is no more susceptible than Bartlett.



"The flesh of the Gorham is white, juicy, fine-grained and of a 'melting' consistency."

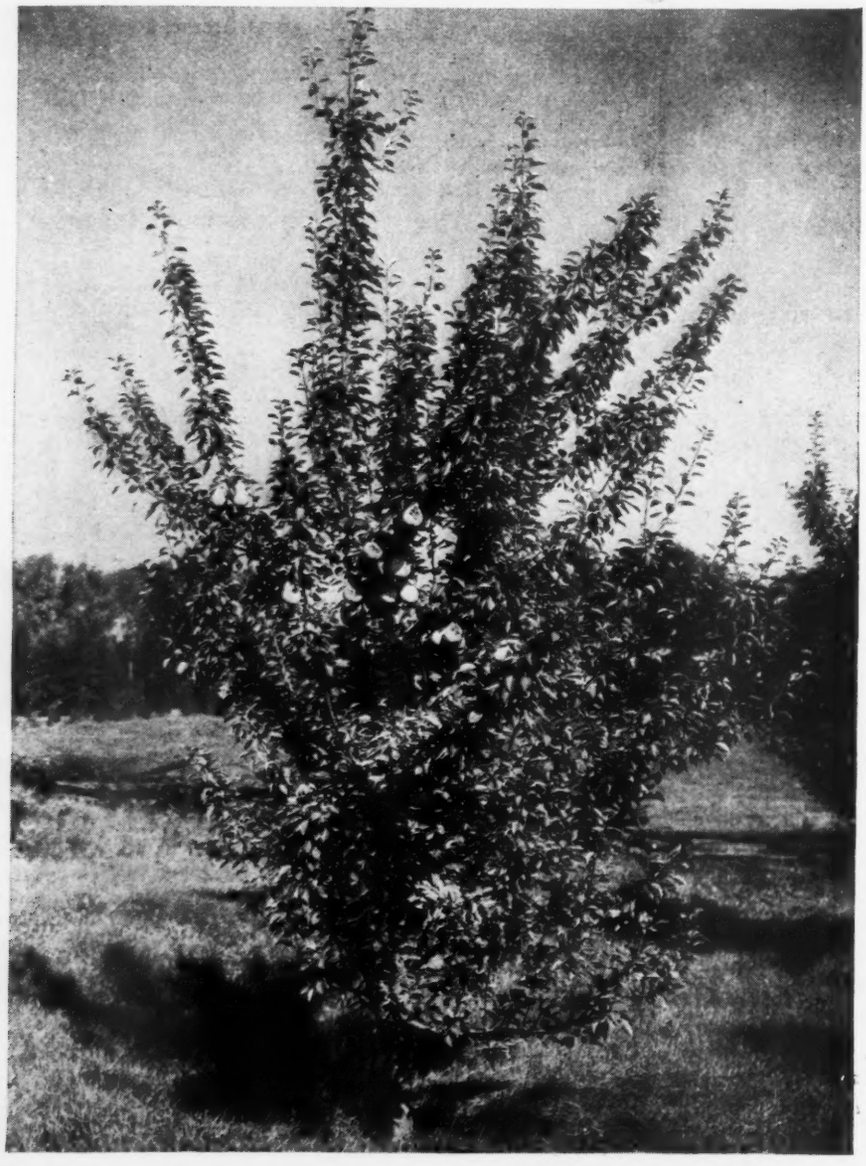
But the variety shows most promise in the character of its fruit. To the writer and those who have tested it at the Ohio station it appears to be of as high, if not higher quality than Bartlett. The fruit is of the Bartlett type, approximately the same size and shape. The skin is a pale yellow overspread with a fine, smooth russet which is extremely attractive. The flesh is white, juicy, fine-grained and of a "melting" or "buttery" consistency. On the whole it seems to be of much higher quality than any of the other Geneva crosses fruiting at Wooster.

No attempt has been made to determine the keeping qualities of Gorham. From observation it seems to hold up quite well, but doubtless it has not the keeping qualities of some of the later ripening pears.

The fruit matures later than Bartlett, however. The picking time at Wooster seems to fall on or about September 15, which was the picking date in September, 1933, while Bartlett was picked on August 25.

The blooming dates of the two varieties coincide almost exactly and for this reason it is suggested that Gorham might well be planted as a pollinizing variety for Bartlett, a variety among a number for which the Geneva station reports that it is quite satisfactory. I would suggest that

(Continued on page 30)



The fruit of the Gorham matures later than the Bartlett. One of the experiment trees photographed in the fall of 1934 at the Ohio Experiment Station Orchard.

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4000 GALLONS OF SPRAY
(1 pint to 100 gallons of water)

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(¾ pint to 100 gallons of water)

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THE grade of fruit you sell next fall and the price you get depends largely on the spray protection you provide. Insects such as Green Aphis, Red Bug and Leaf Hopper, dwarf and gnarl fruit and damage foliage. "Black Leaf 40" used with the standard calyx spray kills these pests—*by contact and by fumes.*

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3564

AMERICAN POMOLOGY

A Page Conducted in the Interests of the American Pomological Society

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THE American Pomological Society has now entered upon the second year of its co-operative arrangement with AMERICAN FRUIT GROWER. This relationship has provided the A.P.S. with a news organ and is the means of acquainting a large number of readers with the work and aspirations of the society.

Renewal memberships are coming in every day. State horticultural societies are also taking out affiliation memberships, so that today the A.P.S. is stronger than in many years. The Proceedings are to go to press soon, and that brings up again the matter of memberships.

This year the Proceedings will contain much new information relative to a number of very practical orchard matters. For instance, do you know the present status of rubber-tired equipment for the orchard tractor and the sprayer? Orchardists will tell of their experiences in the report. Irrigation for central western and eastern apple growers is a live topic and was discussed exceptionally well by practical orchard men at the Grand Rapids meeting.

You will also be interested in the latest report which tells how small wood pruning in apple trees reduces the size of the cull pile. Prof. G. L. Ricks of the horticultural department of the Michigan State College explains the method in detail. The latest information on spraying is, of course, thoroughly discussed by authorities. The residue problem also.

Due to the fact that a number of state horticultural societies are giving their members a year's subscription to AMERICAN FRUIT GROWER, the A.P.S. has revised its schedule of annual dues. Membership rates are as follows:

1. Regular fee, $1.25 per year. This entitles the member to (a) a year's subscription to AMERICAN FRUIT GROWER, (b) the printed Proceedings of the annual convention, and (c) other printed material sent from the secretary's office.

2. Fee of $1.00 per year for those who are already receiving AMERICAN FRUIT GROWER.

This fee of $1.00 also applies to Canadian memberships and because of extra costs for postage and duty, does not include AMERICAN FRUIT GROWER.

Membership dues cover the fiscal calendar year. When AMERICAN FRUIT GROWER is included, the subscription begins or extends from date of receipt of dues. All dues should be sent to Secretary H. L. Lantz, Station A, Ames, Iowa.

Some New Peaches

Interest in new varieties of fruits appears to be very real. Some new varieties are making a record for themselves and sooner or later will become important commercial varieties. New peaches in particular are gaining much publicity and are being planted extensively. The hunt is on for a hardier peach of better quality to take the place of Elberta.

A recent letter from Director E. F. Palmer, Horticultural Experiment Station, Vineland Station, Ontario, Canada, states that new peaches originated there stood the severe winter of 1933-34 much better than Elberta, and that up to the present time nurseries have not been able to fully supply the demand for these new varieties. He further states that over 50 per cent of the new plantings are of the new varieties. Valiant and Vedette have been planted in commercial quantities; Veteran also. The Vaughn and Viceroy, he says, are not being particularly recommended for commercial planting, but because of their hardiness they may be valuable in those regions where peaches are a home orchard fruit.

In Iowa, the Polly peach has made a real record for hardiness, and much new interest in peaches has been awakened as a result of its introduction by the Iowa Agricultural Experiment Station at Ames.

Get Rid of the Culls

The need for expanding the export market for American-grown fruit is recognized by fruit growers and marketing organizations. To speculate upon the effect on prices when that inevitable large crop comes along in the United States, as it most surely will, and perhaps in 1935, places fruit growers squarely up against a most serious problem in marketing. That the government is cognizant of this fact is in part due to the efforts of such organizations as the Eastern Apple Growers Council and the American Pomological Society.

Pending new export arrangements with foreign markets, which may or may not materialize, would it not be of tremendous advantage if fruit growers themselves would take stock of their present orchard holdings, and then cut out unprofitable trees, varieties and acreages; and, further, take suitable steps to manage the balance of the orchard so that the fruit produced will be of the highest possible quality? In other words, reduce the size of the cull pile, and instead of throwing the cull pile on the market via the truck and local market, get rid of it.

It has been pointed out many times that cull apples distributed far and wide at harvest time have been the source of much grief in lowering prices for the entire industry. Such fruit destroys the desire for apples, as much of the "junk" marketed creates consumer disgust regardless of the price paid. The ultimate result is that consumers then buy other kinds of fruits.

The cull question, however, is as old as the industry itself; it has been discussed for years, and still the culls find their way into consumptive channels. The remedy is perfectly obvious. This may seem an untimely topic at this writing, but now is the time to begin planning for the 1935 crop.

The Residue Problem

Apple growers in the Middle West are feeling the need for more help from both federal and state governments in solving the problems involved in meeting the spray residue regulations. The U.S.D.A. takes the position that the growers should develop or work out with the individual states methods of meeting the tolerance and securing analyses previous to shipment. In view of the long period during which the U.S.D.A. taught growers to use lead arsenate for the control of codling moth (and without evidence of menace to public health) it would seem hardly just for the Department to precipitate a situation which leaves growers and states alike in a position unprepared to secure the analytical services necessary to determine spray loads before shipment or full advice on removal methods.

In view of the situation, the A.P.S. suggests first, that orchardists acting directly and through their organizations, especially state horticultural societies, take the matter up with the state departments of agriculture or other proper state authorities such as departments of horticulture and state experiment stations, and work out in co-operation with all concerned a service which will make it possible for growers to have enough analyses of fruit made at packing time to determine the residue loads and remove the uncertainty now prevailing in the industry. This will be difficult where there are numerous rather small isolated orchards, but the effort must be made.

Second, orchardists and their organizations are advised to urge the U.S.D.A. to put a few men in the field to co-operate with the state horticultural societies, the orchardists, and the state authorities, by advising on set-ups of laboratories for analysis and by offering the benefit of the washing experiences and other information in the hands of the Department. If money is not available to do this, the industry should uphold the Department in requests for sufficient money for the purpose.

H. L. Lantz

Nation Wide News

Jonathan apples at Wenatchee, Wash., have been subjected to dry ice refrigeration and experiments conducted for some time have demonstrated that to put them in such storage for 24 hours prevents soft scald during the storage season. This trouble in the past has been a serious cause of loss.

▲ ▲ ▲

The most recent estimates on the fruit damage in Florida, due to the freeze of last December, show losses of over 12 million boxes of citrus fruits. This report indicates that over 55 percent of all citrus fruit was seriously damaged, ranging from a figure of 48.7 percent in grapefruit to 82.3 percent of the tangerine crop. Serious damage was reported throughout 80 percent of the citrus belt, affecting 60 percent of the commercial groves of the State.

▲ ▲ ▲

Michigan has quite a distinction in the Apple Kingdom. It is the only state in the U. S. to have an above-average apple crop both in 1933 and 1934. It shared the distinction with Massachusetts and Idaho in 1933, and with Arkansas in 1934.

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Northwest apple growers are again being aided by Governmental agencies in the purchasing of 3000 tons of C grade apples by the Federal Emergency Relief Association. The price paid to the growers is $20 per ton, totaling $65,000 for the entire purchase. Besides being a worth while outlet for a considerable portion of the remaining supply of lower grades, it will do much to strengthen the market on the higher grades now in storage.

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A marketing agreement for the Colorado peach industry, under the AAA, has recently been given final approval by Secretary of Agriculture Henry A. Wallace. Because the 1934 season is over, a license for the industry will not be issued at this time. The agreement was approved to enable the industry to select a control committee and to organize for marketing next season under its provisions. The agreement provides for proration of shipments, grading of peaches to U. S. standards, and the posting of prices.

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Utah increased her production of apples and pears last year. The peach crop was ahead of any other season.

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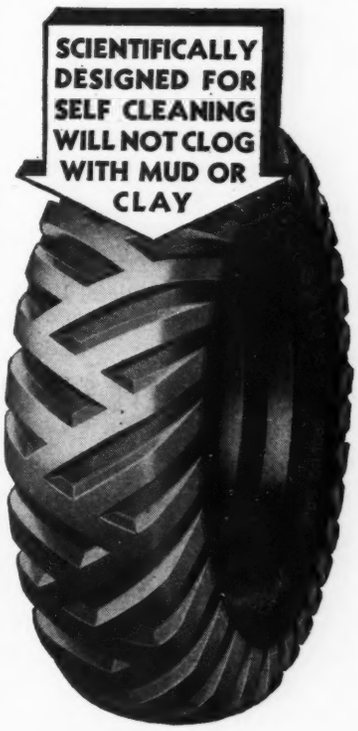
You cannot afford to be without these tires on your trucks or passenger cars. If your tractor is not equipped with rubber tires, see your nearest Firestone Service Store—tire dealer or implement dealer, and learn how easy it is to make the changeover. Prices on Firestone Tires and Auto Supplies are comparable with any lines on the market today.



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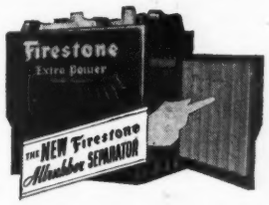

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BEES FOR BIGGER CROPS

By CLARENCE A. MAY

THAT bees are necessary in the spreading of pollen of fruit trees is the conclusion of all horticultural specialists. Such varieties as Stayman, Black Twig, and Old Winesap, even when planted together, should be cross-pollinated by still other varieties in order to secure enough fertilized flowers to insure a good set of fruit.

If wild bees are numerous in the vicinity of the orchard, it may not be necessary to secure additional bees. California prune and almond growers realize the value of honey bees so greatly that they rent hives from bee-keepers for the period when their trees are blooming and place them in their orchards at the rate of two hives per acre. While most growers, because of extensive acreages, cannot afford to buy or rent a sufficient number of hives to place them as closely as the California growers, they can approach this ideal number as nearly as possible.

If bees are to be most efficient in pollination, a sufficient mixture of varieties must be together. This will necessitate top-working certain trees if large blocks of single varieties such as Stayman and Black Twig are present in the orchard. In setting new orchards, particular attention can be more easily given to the problem. At least one row in five should be planted to a different variety.

"Acclimated" Nursery Stock Bugaboo

THERE is a mistaken idea prevalent among a few fruit growers that they should plant ONLY nursery trees which are grown in the locality where the orchard is to be planted.

This idea, however, has been exploded by tests made by many of our well-known and experienced horticulturists. Tests and observations covering half a century have proved the falsity of this view and that it is utterly without foundation.

Hardiness and other variety characteristics are hereditary in nature and are not lost by a variety when moved from one district to another. It makes little difference where the trees are grown, provided they are equally thrifty, healthy and mature. A tree grown where conditions are right for its production can be transplanted in any location—from South to North, North to South, West to East, etc. This is now taken as an accepted fact by the scientific horticulturists and practical orchardists everywhere.

HEARD AT THE CONVENTIONS

[READERS ARE INVITED TO SEND IN NOTES FOR THIS DEPARTMENT]

Tar oil distillate applications for aphis control are less toxic to fruit trees when applied in the fall, states Prof. F. Z. Hartzell of the New York Experiment Station. They are safe, however, when used as a dormant application if not over three per cent in strength.

With the probability of a large apple crop in 1935, point your orchard practices towards the production of large and high quality fruit. This can be best secured by detailed pruning and light fertilization, followed by proper fruit thinning next summer. Weak inside wood may be pruned off at any season of the year.

Blossom thinning of fruit does not lessen the job of fruit thinning, because a larger per cent of the remaining blossoms set fruit. The practice is desirable, however, thinks Dr. R. H. Roberts of Wisconsin, from the standpoint of increasing the foliage area through increased leaf size and shoot growth.

The resistance of peach buds to low temperatures increases until the middle of January, after which time their hardiness decreases rapidly if warm periods develop. If the weather remains cold, they may become even more hardy after that time.

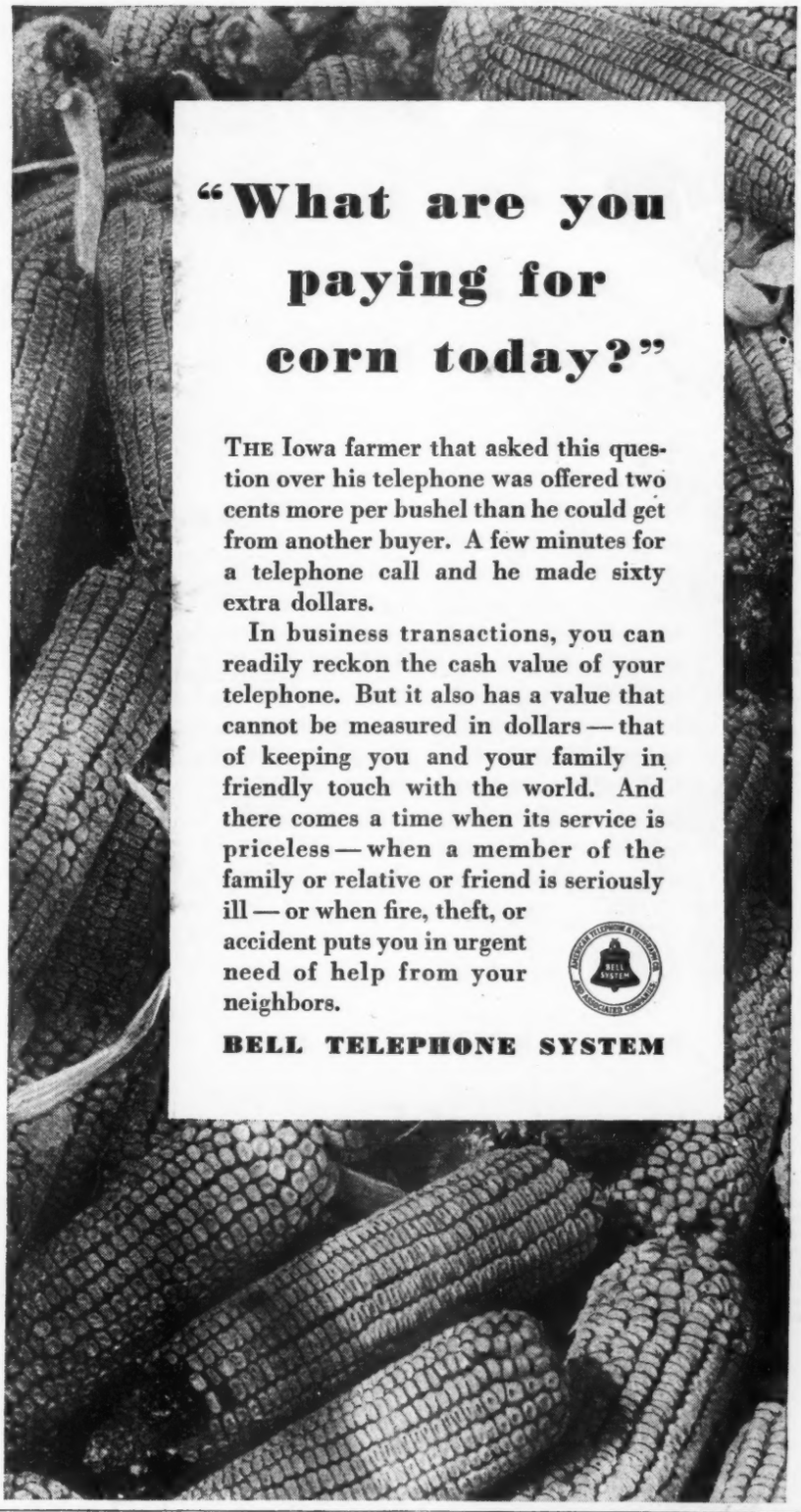
The nitrogen fertilizer should be applied early enough in the spring to be *sure* and have nitrogen in the fruit spurs at fruit setting time. Three weeks ahead of bloom may not be early enough in a dry season. It was brought out by Dr. Laurenz Greene of Indiana that less nitrogen is lost by leaching than was formerly believed.

Pear pruning should be directed towards the elimination of limb-bruising the fruit. This involves a careful thinning out of parallel limbs and the removal of some spurs on the top side of the fruiting branches.

Prof. C. L. Burkholder of Purdue University terms low branches which lay on the ground as "fire escapes." These should be removed in pruning as they offer fine hibernating places for the codling moth.

The inability to do a thorough job of spraying may usually be co-ordinated with a lack of "system." Poor scab control is most often associated with missing the top-middle portion of the tree. Most of the worm holes from codling moth are found on the sides of apples towards the trunk of the tree, which means a poor job of spraying was done from or on the inside. Second to lack of system in spraying poor coverage is usually a matter of using too little liquid or spray material per tree.

"Eliminate unprofitable varieties of fruit!" "Put more money and time on the profitable orchard areas, and less or none at all on the unprofitable areas!" This is the continued advice of leading horticulturists and students of orchard economics everywhere. New orchards can in some cases be brought into bearing at less expense than is required by the care of old, unprofitable trees.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Dutox	P. A. C. Formaldehyde Dust
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STATE NEWS

(Continued from page 11)

time. The annual report of the association, however, containing these valuable papers, will be available at an early date for all those who send in membership dues.

Officers elected for the ensuing year are: J. H. Seaver, Twin Falls, president; Darwin Symms, Huston, vice president; George Yost, Emmett, treasurer.

W. H. WICKS, *Sec'y*,
Boise.

OHIO HAS SUCCESSFUL MEETING

JUDGING from attendance and interest, the recent annual meeting of the Ohio State Horticultural Society was the most successful annual meeting in its long history of service to the Ohio fruit growers. The annual report to members, now being prepared, is full of practical and useful information that the members will be glad to assimilate and use in the growing season just ahead.

The program featured viewpoints of grower members who presented their observations and recommendations on such timely problems as codling moth control, methods of orchard soil improvement, orchard irrigation, irrigation of small fruits and experiences with the newer varieties of tree and small fruits.

The spray residue problem was ably discussed by C. L. Burkholder, Purdue University, Lafayette, Ind. Dr. A. J. Heinicke, Cornell University, Ithaca, N.Y., talked interestingly on the cultural conditions influencing the manufacture of fruit by apple leaves. He also discussed the relation of soil type and structure to apple production.

Officers elected for the coming year are: W. J. Welday, Smithfield, president; H. N. Scarff, New Carlisle, vice president; F. H. Beach, Columbus, secretary; C. W. Ellenwood, Wooster, treasurer. Serving on the executive committee with the officers are: C. E. Dutton, Milford Center, and H. Burkholder, Clyde.

In co-operation with the Ohio Vegetable Growers' Association, an extensive commercial exhibit layout was arranged which featured all supplies, machinery and equipment used by fruit and vegetable growers.

F. H. BEACH, *Sec'y*,
Columbus.

QUAKER STATE NEWS

TWO days of meetings with eight out-of-state speakers, a banquet, and an Apple Show occupied the attention of fruit growers attending the 76th annual meeting of the Pennsylvania Horticultural Association.

"Fruit Growing," according to H. W. Miller, prominent West Virginia orchard manager, "is a food manufacturing profession. Only those fruit growers who can change their orchard practices fast enough to meet the new difficulties as they develop can survive this depression." He added that most eastern orchards are underequipped with machinery, especially with sprayers. It would be better to have 25 percent too much equipment, he thought, than lose 25 percent of the fruit crop by being behind.

B. A. Porter, U.S.D.A., Washington, emphasized the fact that there is so far no substitute for lead arsenate in spite of a tremendous amount of work.

Laurenz Greene, Purdue University, Lafayette, Ind., spoke on the importance of factors, aside from pollination, that affect fruit setting. Dr. Greene asserted that

"vigorous trees, properly protected against insects and diseases, will set profitable crops under all but the most extreme weather conditions, and will set, in many seasons, when less favorably situated and weaker trees and orchards fail to set."

Richard Bradfield, Ohio State University, Columbus, pointed out to the growers the factors that made a soil desirable or deadly for apple production.

W. J. Welday, Smithfield, Ohio, is "one of those muchly denounced rugged individualists." He believes that "survival of the fittest" is much more applicable to the better grower than the "New Deal proposals for deadening initiative and co-operative systems which tend to pull the least efficient and the most successful to the common level."

R. D. Anthony, State College, showed that stable manure or green manures grown near the orchard and hauled in will bring back orchards which look almost impossible.

F. N. Fagan, State College, stated that good fertilizer and cultural treatment will help apple trees to bear good crops every year when weather conditions are favorable.

Complete coverage of apple trees by spraying from both inside and outside gives the best control of diseases, R. S. Kirby, State College, reported.

Officers for 1935 are: H. F. Hershey, Hamburg, president; R. Johnston Gillan, St. Thomas, vice president; R. H. Sudds, State College, secretary; C. B. Snyder, Ephrata, treasurer. The executive committee includes the above-named officers and C. J. Tyson, Gardners; J. Eric Linde, Orefield; and H. M. Anderson, New Park.

R. H. SUDDS, *Sec'y*,
State College.

Massachusetts Notes

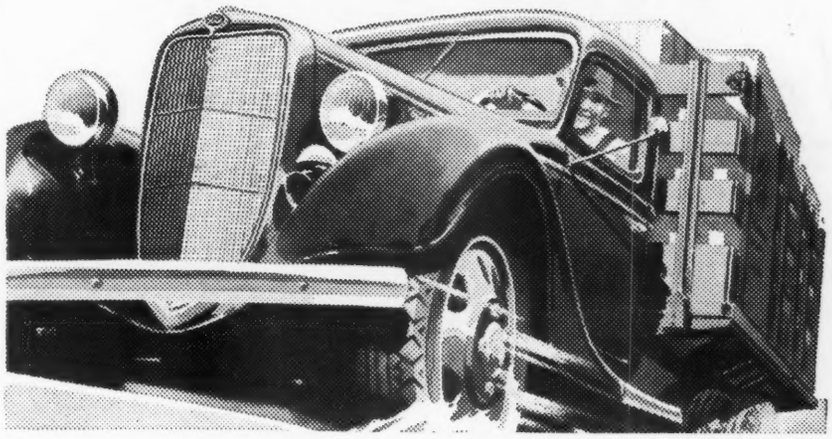
ALL records for attendance were broken at the 1935 annual meeting in January. Almost a thousand men and women, including growers from all the New England states and from New York, came to one or another of the six sessions.

Wednesday afternoon those present were treated to a fine local talent discussion of worth while practices in the apple industry, under the leadership of Howard P. Gilmore, and to a comprehensive discussion of how much, what to do about it, what varieties to plant as replacements, on the 1933-34 winter injury topic. Thursday was pest day. Needless to say, the headliner was Dr. P. J. Parrott of Geneva, N. Y., who spoke on pest problems in the Northeast in the forenoon and dormant spray programs in the afternoon. Other topics of general interest on this program were fruit disease problems, 1934 pest injury as shown by apple counts, discussed by local men, and a consideration of peach growing by H. M. Rogers and John Lyman of Connecticut.

Friday was economics day. The apple situation was discussed by John G. Welch of the American Fruit Growers; the A.A.A. by Dr. Roger Corbett of the U.S.D.A.; cold storage research by Prof. E. J. Rassmussen of New Hampshire University, business practices by Roy E. Moser of Massachusetts State College, and the proposed regional market for Boston by L. A. Bevan of the State Department of Agriculture.

WILLIAM R. COLE, *Sec'y*,
Amherst.

THE NEW 1935 FORD V-8 TRUCK



ONE hundred and twenty-five thousand Ford V-8 Trucks in use throughout the world have proved their right to the claim "America's great truck value." Because of this widespread acceptance, the entire production of Ford Truck engines is of the V-8 type.

To the proved design of the Ford V-8 Truck have been added many new features. But from your point of view, the most important question is: "What will this new truck do for me?" Your Ford dealer is ready to answer that question right NOW. He is so confident of V-8 performance and V-8 economy that he will gladly arrange an "on-the-job" test for you if you are in the market for a new truck. Ask your Ford dealer to let you try a 1935 Ford V-8 Truck with your own loads . . . over your own routes . . . with your own driver at the wheel.

Then ask the price! Such performance and economy at a price so low will convince you once and for all that this 1935 Ford V-8 Truck is now more than ever AMERICA'S GREAT TRUCK VALUE!

THE ONLY TRUCK AT ANY PRICE THAT GIVES YOU ALL THESE FEATURES

NEW CAB
Passenger-car comfort. Adjustable seat. Instruments grouped directly in front of the driver. Safety Glass, standard equipment throughout. Triple ventilation includes: (1) Clear-Vision Ventilation in door windows; (2) easy-opening windshield; (3) large screened cowl ventilator. Seat width increased to 49 inches. Interior completely lined.

NEW BRAKES
Cast alloy iron drums with integral cooling ribs. Drums will not "bell-mouth." No "fading," even when making a series of quick stops in rapid succession. New brake mechanism makes stopping quicker and smoother with heavy loads. Longer life between adjustments.

NEW CLUTCH
New design assures much longer clutch life, minimizes slippage and permits smoother engagement. Lower pedal pressure at idling speed. Plate pressure increases as speed of engine increases. Improved ventilation. Diameter increased to 11 inches. Larger frictional area.

IMPROVED COOLING
Larger water pump impellers. Six-blade 15½-inch fan. Wider radiator, 15% more area.

NEW CRANKCASE VENTILATION SYSTEM
Directed-flow crankcase ventilation reduces corrosion and oil dilution by removing fumes.

V-8 PERFORMANCE WITH 4-CYLINDER ECONOMY
80-horsepower Ford V-8 Truck engine uses no more fuel than a "four." Dual carburetor and dual intake manifold. Light-weight, cast alloy pistons. Exhaust valve seat inserts. Heavy-duty copper-lead connecting-rod bearings.

Low-cost Engine Exchange Plan . . . Full-floating Rear Axle with Straddle-mounted Driving Pinion . . . Full Torque-tube Drive Permits Free-shackling of Semi-elliptic Rear Springs . . . Deep, Rugged Frame with no "Kick-up" . . . Oilless Front Spring Shackles . . . Baked Enamel Finish . . . Deep-skirted Fenders Match Colors of Hood and Cab.

CONVENIENT TERMS THROUGH UNIVERSAL CREDIT COMPANY

SEASONABLE FASHIONS

No. 2810—Slender Line Dress. Designed for sizes 36, 38, 40, 42, 44, 46 and 48-inches bust. Size 36 requires 3½ yards of 39-inch material with ¾ yard of 35-inch contrasting.

No. 2861—Costume Slip. Designed for sizes 14, 16, 18 years, 36, 38 and 40-inches bust. Size 16 requires 2⅜ yards of 35-inch material with 1½ yards of lace edging.

No. 2871—For Small Daughter. Designed for sizes 2, 4 and 6 years. Size 4 requires 1⅝ yards of 39-inch material with ¼ yard of 35-inch contrasting.

No. 2789—Practical Home Frock. Designed for sizes 16, 18 years, 36, 38, 40 and 42-inches bust. Size 36 requires 2¾ yards of 39-inch material with ⅞ yard of 35-inch contrasting.

No. 2854—Slender Home Wear. Designed for sizes 37, 39, 41, 43, 45, 47, 49 and 51 inches bust. Size 37 requires 3¼ yards of 35-inch material with ½ yard of 35-inch contrasting.

Patterns may be secured by mail, postage prepaid, at 15 cents each from FASHION DEPARTMENT, AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland, Ohio. Be sure to state size required. Enclose 10 cents additional for New Spring Fashion Magazine (15 cents where no pattern is ordered).

SPRING COMES IN AT THE WINDOW

By MARY LEE ADAMS

BEGINNING with the calendar date for spring after mid-March, and advancing northward with the opening season through April and May, the traditional "Spring-House-Cleaning" during many a past decade cast a gloom of several days' duration over thousands of homes throughout the country.

Thick carpets, completely covering the floor and securely tacked down, made a weary job for those who took them up, beat and cleaned and stowed them away until the next cold month. "Mops, pails and brushes," a sloshing and scrubbing of bare floors, disarrangement of familiar furnishings, irregular meals, all contributed to the legends that have come down to us of domestic discomfort that accompanied this annual rite and fully accounted for the acute seasonal irritability of usually patient husbands.

Far more gracious is the present housekeeper's task. We still feel the urge to freshen up in honor of spring, but floors, now generally waxed, stained or varnished, present no exhausting problem. Rugs have replaced the old weighty carpets and are far more easily handled. Improved domestic appliances invest the former laborious task with an almost holiday air.

The most important and timely change for warm weather is made at our windows. In winter the curtains may be of heavy material, even lined. They give a sense of comfort and coziness, of protection from the cold, a barrier between us and the weather outside. In summer, on the contrary, windows serve as links uniting us as closely as possible with outdoor air.

To carry out this purpose, you need go no farther than your nearest shopping center to find a wide choice of delightful fabrics at surprisingly reasonable prices. Ready-made curtains may answer in an emergency, but more satisfaction and better results are obtained by the woman who makes her own curtains. It's really exciting and enjoyable to dress up the house for summer with fresh draperies.

Window fixtures are now conveniently simple. Gone forever, save in very old houses, is the old break-neck type of window sash, dubbed "guillotine" because of its genial habit of falling suddenly upon your nape if you dared stick your head out.

Ready to hang, and reasonable in price, are window screens. For health and comfort they are even more important in the country than in the city. A fair measure of success has attended efforts to control flies and other insects by sanitary measures. A great improvement may be noted, and some cities are practically free from flies, but it is exceptional to find a country place entirely rid of them at certain seasons. Screens are a needed protection.

Very attractive roller shades, though somewhat expensive for use all over the house, come in such materials as Austrian cloth or heavy striped seersucker of deep cream color with graceful scallops that would make any living room window smile with secure self-respect. Glazed chintz shades are very charming. My preference, or perhaps it is prejudice, would reserve them for bed rooms.

Of late, the line separating materials for dressing windows from materials for dressing people has become somewhat shadowy. Dress prints, ginghams, voiles and many other fabrics used for wash dresses, are suitable for curtains. Unpretentious and effective are plain unbleached homespun banded in color. Something a bit more formal than this better becomes the living room.

Curtains should be harmonized with the shades, not necessarily matching their hue, but looking well in combination with them. Consider also the tint of your walls when selecting draperies. Hold up the curtain material to the light and look through it to judge what the color effect is going to be when the curtains are hung.

A new, diaphanous, lustrous and very stiff material is now seen at windows. When looped back, it "stands" crisply and carries a suggestion of refreshing coolness. For airy effect, theatrical gauze is an old and tried friend. Something that will dye readily, and thus give you the advantage of new curtains when you wish a change, is a thrifty choice. I've seen very pretty ones which, after a rather sober early life, were dipped a warm apricot shade that lightened up the room most desirably.

GRAFTING COMPOUNDS

(Continued from page 8)

shade did not affect the materials in the least.

Asphaltic emulsions have been used extensively for several years as grafting compounds in California, Oregon, and Washington, and in recent years have been widely used in Canada. Prof. D. A. Kimball of The Ontario Agricultural College carried on experiments for several years with a Canadian product called Braco and found it very satisfactory. Extensive use of this material by fruit growers in Ontario, Nova Scotia, and British Columbia have shown favorable results. A similar product called Colas has been used and it recommended by state officials in Australia.

Asphaltic emulsions dry out quickly upon exposure to the air and therefore it is advisable to use a container holding just enough for the immediate needs. It is much better to renew the supply frequently than to let it dry and become lumpy. It is also necessary to keep the reserve supply covered lightly with water to prevent deterioration through drying out.

In applying asphaltic emulsions with paintbrushes, there may be a little difficulty from the material accumulating on the upper part of the brush, and drying in a hard, lumpy mass. When this occurs, soak the brush in water for a few minutes and then remove the accumulations with a knife. Gasoline is also good for this purpose and acts quicker than water. Unless one is very careful, the hands and clothing are likely to become stuck up a bit with the emulsion. When this occurs, remove the material by rubbing with a rag soaked in gasoline.

"Graftwax" is another compound of comparatively recent development. It is a soft, plastic, resinous material that can be spread on easily with the fingers or a putty knife. It is strongly adhesive and under normal weather conditions will not melt or run. In seasons of very high temperatures such as the past summer it may soften a bit, but usually this is not enough to cause it to run. This wax has given good results on various kinds of fruit trees and on walnuts and hickories.

A well illustrated circular, "Introduction to Beekeeping," has been issued by the Colorado Agricultural College. It was prepared for the use of those who are thinking seriously of securing a few colonies but have had little or no previous experience with bees. Obtained upon request to the Office of State Entomologist, Fort Collins.

'AERO' CYANAMID

22% NITROGEN
70% HYDRATED LIME

The Fruit Fertilizer

It FEEDS the TREE and LIMES the Soil

'AERO' CYANAMID

A non-leaching form of nitrogen
May be applied in fall, winter (in Southern States), or early spring, as one prefers

Feeds the tree throughout growing season
Produces dark green leaves and holds them on until fall (On sandy and shaly soils the supplemental use of potash is recommended)

Keeps the soil sweet and healthy
Destroys acids resulting from use of sprays and cover crops

Produces good terminal growth and fruit buds
Gives bigger yields of better-quality fruit

Write for Leaflet X-307, "Fertilizing Fruit with 'Aero' Cyanamid"

AMERICAN CYANAMID COMPANY
Manufacturers of 'Aero' Cyanamid and 'Ammo-Phos'
30 ROCKEFELLER PLAZA, NEW YORK - - - - - N. Y.
779 VIRGINIA AVE., N. E., ATLANTA - - - - - - GA.

'Aero' Cyanamid is Nitrogen plus Lime

EARLY BIRD TREE BANDS

Write for Prices and Sample

Agents wanted in Every Apple Growing Center

Edwin H. House, Mfr., Saugatuck, Mich.

Make Your Little Farm Pay!

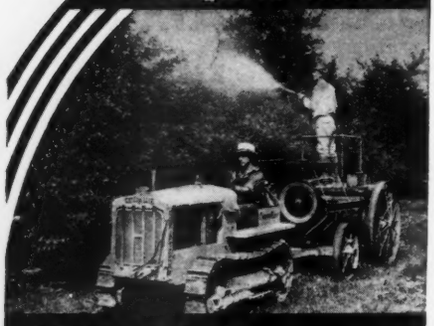
ALL-AMERICAN Tractor fills the gap between garden and farm Tractors.
The All-American is a small, compact, riding Tractor designed for few-acre farmers and commercial growers. Plows, harrows, cultivates, mows, furnishes belt power and does many other jobs at low cost. Foot lift tools. Write Donald & Boerner Corp., Dept. 103. 4143 N. 27th St., Milwaukee, Wis.

A POSITIVE PROTECTION
against all Climbing Insects
TREE TANGLEFOOT

Countless thousands of successful orchardists and vineyardists have learned the dollars-and-cents value of TREE TANGLEFOOT — the marvelous, ***positive protection*** against all creeping or climbing insects. TREE TANGLEFOOT is a specially prepared, extremely sticky compound which when applied in a two-inch band to tree trunk or vine, absolutely stops and repels all destructive creeping insects, yet is non-injurious to humans, trees, plants, or vines. A single application retains full effectiveness nearly 3 months, regardless of weather conditions. Economical. Easy to apply. Obtainable from dealers. For positive protection against all climbing insects, USE TREE TANGLEFOOT.

THE TANGLEFOOT CO.
GRAND RAPIDS, MICHIGAN

NuREXFORM



REMAINS IN SUSPENSION

NuREXFORM is the *improved* lead arsenate because of its many distinctive properties.

Remains in Suspension—This assures all Arsenate of Lead getting onto the foliage and fruit as none settles to the bottom of the tank to be scraped out as waste.

UNIFORM COVERAGE

Spreads Uniformly—NuREXFORM provides an even spread over foliage and fruit. No unprotected gaps are left where the chewing insects may attack.

Mixes well with Lime Sulphur—In NuREXFORM the reaction between Lime Sulphur and Arsenate of Lead is so definitely minimized that it stays in suspension even when used as a combination spray.

CONVENIENCE

For ease of handling and for effective control of codling moth and many other chewing insects, use NuREXFORM.

THE GRASSELLI CHEMICAL CO.
INCORPORATED
CLEVELAND
OHIO

FREE
Write for valuable spray and dust schedule.

for
BETTER SPRAYING—USE
NuREXFORM
The Improved Arsenate of Lead

THROUGH THE YEAR WITH SPRAY MATERIALS

(Continued from page 7)

peated tests have shown that both commercial and home-mixed oils are efficient in controlling scale and red mite. Lubricating oils can be applied with safety later than the tar-acid oils but as a general rule their use should stop when or before the first leaves have reached a length of one-quarter inch. It should also be remembered that oils have little or no fungicidal value.

Sulphur sprays may be used when the following conditions exist:

1. Fungicidal efficiency desired.
2. San Jose scale to be controlled by using dormant strengths.
3. Rosy aphis to be controlled by adding nicotine.
4. Insect problems generally not severe.

Sulphur sprays, particularly lime-sulphur, are now considered as the standard early season fungicide. Effective action of this nature, of course, is not obtained till the first leaves appear. For many years lime-sulphur at dormant strengths was the standard scale control; now, however, conditions generally warrant the use of oils for this trouble. If orchards are free from scale, red mite, aphis, and other insect pests, no sprays may be needed till the delayed dormant period, when the standard strengths for pre-blossom spraying may be used.

Pre-blossom Sprays.—During the pre-blossom period, pathologists are generally agreed that lime-sulphur, either liquid or dry, applied as a spray, is the best bet. Many growers, however, use other materials, such as Bordeaux and wettable sulphurs, and claim good results. Dusting with sulphur is now largely considered an emergency operation, useful because of the speed with which an application can be made. The necessity of covering a large acreage in a short period of time justifies its use.

If trees stand in bloom over a long period of time it is frequently desirable to apply a fungicide. In more southerly sections of the apple-growing belt, Bordeaux mixture may be used, while in northern portions lime-sulphur at more dilute strengths is recommended. Six pounds of dry lime-sulphur per 100 gallons of water or the liquid form at 2-100 are generally considered as near the maximum strength. Dusting with sulphur may also serve in an emergency, though many beekeepers do not favor its use. Arsenicals should never be incorporated in a spray or dust to be applied when the trees are in blossom.

Calyx and Cover Sprays.—With the arrival of the time for the petal fall or calyx spray, the objective of the spray program in most orchards becomes more specific. Codling moth is then the great enemy to be overcome.

In recent years, since the advent of spray residues, this problem has become quite complicated, especially for those growers with heavy infestations of this insect. In general, the problem has now resolved itself into two distinct situations: First, one in which

(Continued on page 26)

CUT MOWING COSTS... with a

DETROIT MOTOR SCYTHE

- Here is the most economical and easily handled cutter on the market
- It goes anywhere, cuts anything, and enables one man to do the work of four or more with hand scythes.
- It has a 36-inch sickle driven by a powerful one-cylinder gasoline motor and is mounted on a free running 30-inch wheel, allowing it to be backed up, pivoted sharply, or tilted up or down slopes similar to a wheelbarrow.
- It is now produced by a recognized leader among mower manufacturers and during over four years of service, thousands of users have enthusiastically testified to its dependability.

Write for prices and Bulletin No. 1

DETROIT HARVESTER CO.
5450 W. JEFFERSON AVE., DETROIT, MICH.

TRADE GUNS FOR $1

Save $10 to $50. No cash difference necessary. Trade your Shotgun, Rifle, Revolver or anything of value for the Gun you want. Write us what you have and what you want and send $1 for our Trading Service, and we will send Catalog of 500 Guaranteed Guns, most all kinds of Shotguns, Rifles and Revolvers and mostly in fine or new slightly used condition and you can take your choice. Nothing more to pay us. Brand New Guns at Sale Prices. Send 2 dimes for Catalog of 500 Guaranteed Guns for trade or sale.
National Gun Trading Co., Dept. A5, Johnsonburg, Pa.

BEES FOR PROFIT

MAKE AN INCOME FOR YOURSELF WITH BEES

Develop a home market, little work, small expense to start. We gladly tell you how. We manufacture a complete line of Bee Supplies. Honey Selling helps. Write for our new 64-page catalog, brimful of helpful suggestions. It is free. Also monthly bee magazine *Gleanings in Bee Culture*, 2 yr. $1.50, Sample free. Tell us if you keep bees.

THE A. I. ROOT CO., Box T-95, Medina, O.

Northern Nut Growers Discuss Hardiness of Nut Trees

AT the 1934 meeting of the Northern Nut Growers' Association in Battle Creek, Mich., winter injury of nut trees was freely discussed. It was brought out that while many varieties of nut trees were severely injured, or even killed by the severe weather of the preceding winter, many were also uninjured and bore good crops in 1934.

Dr. L. H. MacDaniels of Cornell University reported on winter killing of nuts in the vicinity of Ithaca, N. Y. The minimum temperatures at the points under observation ranged from -27°F. to -35°F. during the February cold spell. English walnuts were severely injured. Some were killed to the ground, while others were killed back to the trunk and main limbs, and some trees were killed outright. He considered temperatures of about -25°F. to be the critical point for the average English walnuts that are grown in New York State. The rehabilitation of these large trees presents a problem, in that the removal of the large dead limbs will leave wounds in which decay will eventually develop to the point of ruining the tree.

Prof. James A. Neilson brought out the fact that some of the English walnuts imported from Poland by the Rev. P. C. Crath of Toronto, Canada, survived temperatures in Michigan which severely injured other English walnuts. An importation of these hardy nuts and scions is being made this winter by the Rev. P. C. Crath, who is personally collecting the material in Poland. A number of exceptionally hardy types have been developed in the mountains of that country where the winters are severe. Persons interested in purchasing seeds or scions of these hardy strains from this importation should communicate with the Department of Horticulture,, Michigan State College, East Lansing, Mich.

Chinese chestnuts were also severely injured. All of the above-ground parts were completely blackhearted and Dr. MacDaniels believed these trees would not recover satisfactorily unless cut back to a point below the blackhearted tissue. All of the Chinese chestnut trees observed by the writer on the grounds of the experiment station at Geneva looked very sick and many were killed outright. The critical temperature for this nut seemed to be about -30°F., less serious injury resulting where a minimum temperature of -27° was experienced.

Heartnuts and hybrid butterjaps fared better than in milder winters, probably because of better maturity of the trees.

Zenas H. Ellis of Fairhaven, Vt., reported that his pecan tree over 40 feet in height, and a foot in diameter, was as hale and hearty as ever this summer, whereas most of his fruit trees were dead or severely injured from the severe cold. Such a hardy and beautiful tree deserves more extensive planting in the North as an ornamental, even though the nuts fail to ripen because of the relatively short, cool, growing season.

Black walnuts and hickories wintered well, although an occasional hickory graft died. Filberts likewise stood the winter at Ithaca, N. Y., and bore fair crops. One commercial planting is being established near Ithaca. At Geneva, N. Y., filberts were injured severely, but a few varieties bore fair crops. Filberts, usually considered rather tender, fared better than peaches under the same conditions.

G. L. SLATE, *Sec'y*,
Geneva, N. Y.

There's a nation-wide swing to the ORTHO Program for

SUMMER CONTROL

OF INSECT PESTS AND DISEASES...

● Here's a control program that really controls.

It provides for Codling Moth, Scab, Brooks' Fruit Spot, Scale, Red Mite and most every summer insect pest and disease.

From every fruit-growing area in the United States come reports of great success, with cleaner trees, finer fruit, and better returns.

For Codling Moth, use ORTHOL-K and Lead Arsenate with ORTHO Spreader. It's the most completely effective known control for moth. ORTHOL-K, the ORTHO Oil Spray for summer use, kills the eggs, reduces "stings," and improves the effectiveness of the Lead.

ORTHOL-K in combination with Nicotine Sulphate has proved highly satisfactory as a substitute for Oil Lead in control of Codling Moth. Moreover, it cleans up Red Mite, Scale, Aphids, Leaf Hoppers, Case Bearers, etc., at the same time, and ends the residue problem.

For Scab, Brooks' Fruit Spot, Blotch and similar diseases, use improved *Coposil*, a colloidal copper fungicide rated by authorities as safer than Bordeaux and other copper fungicides. Mixes readily with the ORTHOL-K —Lead Arsenate or Nicotine Sulphate combination.

As a Film Builder with Arsenical, Sulphur-Arsenical, Lime-Sulphur, Bordeaux, and other copper sprays, and the Oil-Lead Arsenate combination use *Improved* ORTHO *Spreader.*

Write for 1935 ORTHO *Spray Bulletin and full information.*

CALIFORNIA SPRAY-CHEMICAL CORP.
214-B WEST 14TH STREET, NEW YORK
NATIONAL STOCKYARDS, ILL.
2082-B CENTER STREET, BERKELEY, CALIF.

ORTHOL-K

AND LEAD ARSENATE with ORTHO SPREADER

(and 'COPOSIL' for Scab, Brooks' Fruit Spot, etc.)

DON'T GAMBLE

You can't get A-Grade Apples

Why take a chance with your 1935 apple crop? Why let months of hard work, planning and hopes go up in smoke because of inadequate or badly chosen insecticides?

It isn't worth the gamble—particularly when you can draw upon the experiences of hundreds of successful growers and the experiments conducted by the laboratories of the world's largest manufacturer of insecticides.

The Sherwin-Williams recommended apple spraying schedule will produce a heavy deposit of non-injurious sulfur residue to control scab on your apples and foliage. This schedule unhesitatingly condemns liquid lime sulfur in ANY dilution, either alone or with wettable sulfur. Experience has shown it is too likely to burn foliage and russet fruit.

We recommend 3 pounds of Sherwin-Williams Dry Lime Sulfur to 50 gallons of water in the calyx spray. Those sprays applied one week, ten days and two weeks after the calyx spray should consist of 1 pound of Sherwin-Williams Dry Lime Sulfur plus 2 pounds of Mulsoid Sulfur and 2 pounds of Hydrated Lime to 50 gallons of water. In the application 4 weeks after the calyx spray, we recommend 2 pounds of Mulsoid Sulfur with 2 pounds of Hydrated Lime to 50 gallons of water.

In this combination of Dry Lime Sulfur and Mulsoid Sulfur, you will get a high deposit of non-caustic, adhesive, scab-controlling sulfur residue. Sherwin-Williams Dry Lime Sulfur is stabilized, 33° Baumé liquid lime sulfur.

Mulsoid Sulfur is a wettable sulfur containing not less than 98% of sulfur having a minimum of 300 mesh plus an adhesive wetting agent.

For complete information and help, address THE SHERWIN-WILLIAMS CO., *Insecticide Department,* 101 Prospect Avenue, Cleveland, Ohio.

SHERWIN-

SPRAY AND DUST

WITH YOUR APPLE CROP

LIBRARY

WITH AN ANTIQUATED SPRAY SCHEDULE

We repeat—follow this TESTED apple spraying schedule for best results this spring

THE SHERWIN-WILLIAMS *New*
1935 APPLE SPRAYING SCHEDULE

SAN JOSÉ SCALE		
SCAB	DELAYED DORMANT	12 to 15 lbs. Dry Lime Sulfur
SCAB	CLUSTER-BUD OR PINK	3 lbs. Dry Lime Sulfur
SCAB	CALYX	1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB	ONE WEEK AFTER CALYX	1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB	TEN DAYS AFTER CALYX	1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB	TWO WEEKS AFTER CALYX	1 lb. Dry Lime Sulfur, 2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime
SCAB	FOUR WEEKS AFTER CALYX	2 lbs. Mulsoid Sulfur and 2 lbs. Hydrated Lime

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"The bands will trap from 70 to 90% of the cocooning larva, according to the thoroughness with which other hibernating quarters can be removed from the trees. 95% of the expected emergents of first brood moths from the bands will be prevented.***"—H. N. Worthley, Penn. State College

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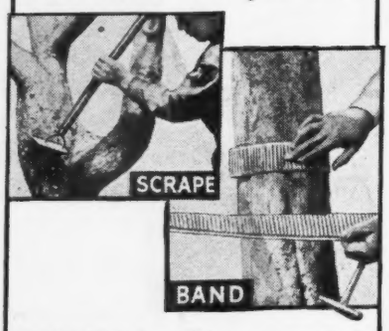

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BETA NAPHTHOL AERO BRAND BETA NAPHTHOL
HOT DIP
for TREE BANDS

THROUGH THE YEAR WITH SPRAY MATERIALS

(Continued from page 22)

the grower is prepared to wash his fruit, and, second, one in which washing will not be attempted. Different spray programs must be used to meet each situation. Commencing with the calyx spray and continuing during the first brood cover sprays, these programs may be quite similar.

Despite years of effort to develop an adequate substitute, arsenate of lead is still the basis for successful operations. Therefore, this material is universally recommended for calyx and first brood covers. In many orchards the dosage of lead arsenate is still as low as two pounds per 100 gallons, while in others as high as five or even six pounds for the same amount of water are being used.

All present indications point toward the use of increased amounts of lead arsenate in heavily infested areas. Growers should not forget, however, that increased amounts of this material also mean increased possibilities of arsenical injury to fruit and foliage. The inclusion of mineral oil or any other effective sticker with arsenate of lead, in first brood cover sprays, usually means that the grower is prepared to wash his fruit. Otherwise he is assuming quite a risk with regard to spray residues.

In the East, the use of oils as stickers is further complicated by fungous troubles which frequently necessitate the employment of a fungicide with one or more of the cover sprays. Oils and lime-sulphur are not compatible and the oil-Bordeaux combination is usually not satisfactory. "Coposil" has been used with oil as a fungicide but this material is not as yet a finished product. Also, a spray containing oil should not follow a sulphur spray too closely.

The number of cover sprays required for control varies greatly. In a few favored sections only one need be made, while in others three or four may be needed. Growers not intending to wash should limit themselves to not more than three cover sprays against the first brood. Furthermore, the last two of these should not carry heavy amounts of lead arsenate. More applications than here recommended or high amounts of lead arsenate, even against the first brood, may lead to a serious residue situation.

At the end of first brood spraying, the two programs should become quite distinct. The grower intending

(Continued on page 28)

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The Lambert high school boys taking vocational agriculture were the pioneers in this wonderful program of "changing bitter to better pecans." They "ate up" this work of top-working trees—many became experts and made good wages by exercising their new skill. Outsiders heard of the success of the Smith-Hughes students "top-working" and called for their services. Later farmers became interested and learned at evening classes. Last spring 11 farmers top-worked 1530 trees after attending class.

At first Mr. Evans secured a large part of his graft wood from S. J. Greer, director of the Natchez Pecan Experiment Station. The industry at Lambert has grown to such an extent that last winter enough dormant wood for 6000 grafts was saved by vocational agriculture students. Today thousands of native pecans have been miraculously changed into revenue bearing trees and will soon yield to their owner cash from the once hopelessly abandoned soils.

On a drive through the Lambert community mile after mile of bayou and ditch banks and slash lands reveal the thrift of its owner. The small trees every 40 to 60 feet have a different color of bark above a certain height. Undergrowth is being cleared away from such trees. This is part of the "servicing" required of those who would "change bitter to better pecans."

It is not all a "bed of roses," Mr. Evans will tell you. The actual top-working is only part of the problem of bringing the tree into bearing. It takes a Smith-Hughes teacher always on the job supervising the owners in servicing the grafts.

This servicing means caring for the tree after a graft begins to grow. It has to be braced by being tied to a piece of stick or lath nailed to the stock. Later, if the graft grows too luxuriantly, it has to be topped to prevent the wind from splitting it off from its food supply. Other trees, undergrowth, and vines have to be cleared as the tree grows. Finally it becomes large enough to shade all other vegetation and becomes master of its situation.

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FOR FRUIT GROWERS

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Paste with lead all season	28.7	6.0	69.8	161.3

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THROUGH THE YEAR WITH SPRAY MATERIALS

(Continued from page 26)

to wash will probably do best to continue the use of lead arsenate, either with or without stickers, according to the degree of infestation that must be controlled. The best stickers for use with lead arsenate are highly refined or "summer" oils. Their continued use throughout the season builds up heavy residues which are difficult to remove even with good washing equipment. However, it is now considered that oil may be used in as many as seven or eight covers (at one-half per cent strength) and the residues still be removable. The use of certain soaps with oil and lead arsenate throughout the season adds to the effectiveness of control but sticks on the material so firmly that it is almost impossible to remove it.

To safeguard the tree from oil injury the summer spray program should not include the application of more than five per cent total oil for the season. If blotch and bitter rot are present, Bordeaux should be used and this will probably call for the omission of oils from these sprays. In those sections where from six to ten cover sprays of lead arsenate and oil must be used, the addition of hydrated lime, as recommended by the Illinois Experiment Station, will serve as an aid in residue removal.

The grower following a washing schedule is, of course, not limited to arsenate of lead alone; for example, he may end his season with applications of oil and nicotine, or oil and one of the different fluorines. Also he may introduce oil and nicotine into his schedule at any time when large numbers of eggs are hatching.

The non-washing grower is one whose codling moth problem is not severe in the great majority of cases. It is understood that he will not have to spray against the third brood, since any effective spray against this brood will be sure to leave residues above the tolerance. Moreover, no matter how severe his problem, the use of lead arsenate should not continue against the second brood. From the start of the second brood sprays, his course has not been fully charted by the entomologists and about all that can be done is to throw out a buoy here and there where the water is known to be safe.

At the start of second brood or "midsummer" spraying such a grower may select one of three groups of materials, these being, first, non-lead arsenicals; second, fluorine com-

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pounds; and, third, nicotine combinations. Each of the three have advantages and disadvantages.

If only one cover spray against the second brood were necessary, it is probable that non-lead arsenicals or fluorines would be favored, but if two or more applications are needed, it should be remembered that there are also residue limits for arsenic and fluorine.

Nicotine alone leaves no objectionable residue but if an application of oil-nicotine is made soon after lead arsenate has been used it may "seal on" the lead so that the tolerance limits may be passed. This may be partly avoided by using as an intermediate spray between the lead and the oil-nicotine one of the non-lead arsenicals, such as calcium or manganese.

In using calcium or manganese arsenate, it is advised that amounts from three to four pounds per 100 gallons be employed, and that they be well buffered with lime at the rate of eight to ten pounds per hundred. Either lime-sulphur or Bordeaux may be the fungicide and in either case excess lime should be added.

If the fluorines (either natural cryolite or barium fluosilicate) are selected they should be used at the rate of three to three and one-half pounds per hundred plus one-half per cent summer oil, this latter being essential to insecticidal efficiency. If the summer oil is omitted, flotation sulphur can be used as a fungicide. Bordeaux is also employed but there are questions concerning its use. The oil, of course, sticks the fluorine more firmly to the fruit and more than one application will undoubtedly raise the residue question.

The chief item in favor of nicotine sprays, and particularly of oil-nicotine, is its toxicity to young "worms." This is very pronounced during the first few days after application but soon disappears due to the volatilization of the nicotine. In order to prolong the toxic effect, many combinations of nicotine have been made. Nicotine has been made into nicotine-tannate and this further combined with bentonite sulphur, in which form it is recommended in New Jersey. Many other combinations have been tried but of all these it seems that oil-nicotine is most effective. Even here, rather frequent applications must be made to get full effectiveness. When used, the recommended strength for the oil is one per cent, while that of the nicotine sulphate varies from 1-800 to 1-1600, according to the severity of the in-

(Continued on page 30)

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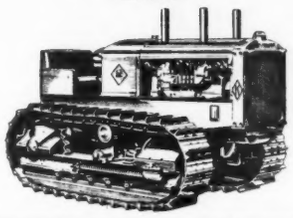

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"EVERY GROWER'S" PAGE

By T. J. TALBERT

TOO much emphasis cannot be placed on the matter of ordering the spraying materials well in advance of the time when they will be needed. There is always a great rush for materials at spraying time, and it may be difficult for the manufacturers to handle all orders promptly. Delay may also occur in shipments. If one or two early applications are omitted because the chemicals fail to arrive in time, the prospects for a fruit crop may be ruined.

In many communities fruit growers combine their orders for chemicals and have them shipped together in large quantities, thus making a saving in freight charges and usually also in price. It is very important that the orchardist determine the amount of material needed for at least two or three summer applications, and in most cases it will pay to order at one time enough material for at least two or three applications of summer sprays or dusts.

Give Spraying Equipment Attention

MUCH more time may be had for a careful study and consideration of the equipment needed for effective spraying and dusting work if such matters are given attention during the winter before spring work begins. Great emphasis should be laid upon seeing that the spray pump, valves, nozzles, and other parts and accessories work properly.

It is wise also to provide, before the summer spraying or dusting work begins, an additional supply of the parts and equipment likely to break or wear out rapidly. The fruit grower who takes out his spraying equipment from winter quarters in February or early March, inspects it carefully and secures all needed parts and accessories, is planning ahead profitably and doing much to prevent costly delays and failures during the busy spraying season.

Smudge Pots

Do you recommend the use of smudge pots in the apple orchard?—B.T.O., New York.

EXCEPT in comparatively mild climates and with valuable fruit crops like the citrus, orchard heating is not likely to prove profitable. But in California, Florida and elsewhere for citrus groves, if orchard heaters are used properly they may be of value. In the deciduous fruit growing regions, however, where there is a wider range in temperature at blossoming time when heating is usually needed, the temperature is likely to nearly always fall too low to be influenced by orchard heaters.

GORHAM PEAR

(Continued from page 12)

one row of Gorham be planted on each side of four rows of Bartlett, a minimum of twenty per cent of the trees Gorham in such a planting.

The advantage of planting Gorham as a pollinizer lies in the fact that no other variety of comparable quality is more suitable under Ohio or northern conditions. Bosc is valuable but the trees should be double-worked. Anjou has a reputation for low yields and Duchess is of fair quality. The value of a variety with a growing season of 130-135 days (10-15 days later than Bartlett but of the same blooming season) is self evident.

Possibly defects in the variety may appear later but at present it seems that as a pollinizer of Bartlett and for limited commercial planting it is highly desirable. In addition, it should also find an acceptable place as a dwarf tree in home plantings. At present several nurseries are propagating the trees so that a large supply of trees should be available shortly.

SPRAY MATERIALS

(Continued from page 29)

festation. Objections to oil-nicotine are: (1) its cost; (2) the difficulty of using a fungicide with it; and (3), as already noted, the possibility of "sealing on" residues if used too soon after applications of lead arsenate.

Before any grower can intelligently select his spray materials or plan his program, he must keep in mind that his orchard is an individual problem. The orchard records should include each year definite notes on injuries due to insects and disease, the dates of their appearance, and the amount of fruit so affected. Distinguishing notes as to the condition of different varieties and the amount of injury in different sections of the orchard should be kept. The amount of crop both by varieties and by orchard blocks is important. No outside individual can grasp and analyze such facts as well as the owner. Therefore, any recommendation as to spray material or practice must be qualified and used in the light of the grower's own experience.

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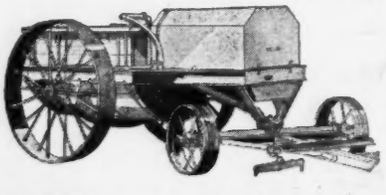

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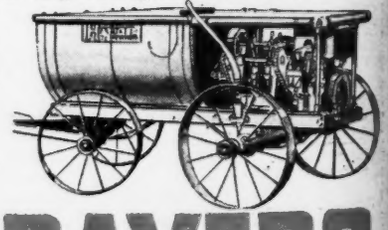

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